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T.O. 33D7-50-12-1

TECHNICAL MANUAL

OPERATION INSTRUCTIONS AND PARTS BREAKDOWN

Part of T-906 Transceiver Test Set

ADAPTER, TEST

MX-6877/URT-21
MX-6878/URT-21

(MAGNAVOX)

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SECTION I
GENERAL DESCRIPTION

1-1. SCOPE

1-2. This publication contains the description, installation, operation, theory, maintenance and table of replaceable parts for Adapter, Test MX-6877/URT-21 and MX-6878/URT-21 manufactured by The Magnavox Company, Fort Wayne, Indiana.

1-3. PURPOSE

1-4. Adapter, Test MX-6877/URT-21 and MX-6878/URT-21 are used to check the performance of Beacon Set, Radio AN/URT-21. Adapter, Test MX-6877/URT-21 is designed for use with Transceiver Test Set Model T-906 and Adapter, Test MX-6878/URT-21 is designed for use with Transceiver Test Set Model P-806. Since Adapter, Test MX-6877/URT-21 and MX-6878/URT-21 are identical, except for minor circuitry differences, both types hereafter are referred to as the Test Adapter (see figure 1-1).

Figure 1-1. Test Adapter

NOTE

Specific differences between Test Adapters will be identified by type numbers (MX-6877/URT-21 or MX-6878/URT-21).

1-5. PRINCIPLE OF OPERATION

1-6. The Test Adapter is designed to securely hold Beacon Set, Radio AN/URT-21 under test when used in conjunction with the Transceiver Test Set. The Test Adapter contains a zener diode regulated power supply which may be substituted for the beacon battery and a volt-ammeter for checking battery voltage and current. In addition, the Test Adapter detects the RF power output from the antenna and connects it to the ACCEPT/REJECT meter located on the Transceiver Test Set.

1-7. DESCRIPTION

1-8. The Test Adapter consists of an aluminum chassis 10.5 inches long, 5 inches wide and 4.1 inches high and weighs 2.3 pounds. A snap-action clamp secures the Radio Set Beacon to be tested to the Test Adapter. Located on the Test Adapter are two switches, a meter, four test connectors, an antenna ground cable, power cable and an antenna output contact

SECTION II
INSTALLATION AND ADJUSTMENT

2-1. UNPACKING

2-2. The Test Adapter is shipped in individual containers by Method III pack. Although no special handling precautions are required, the care and treatment of the Test Adapter should be the same as that normally extended to similar electronic equipment.

2-3. STORAGE

2-4. In storage of the Test Adapter in the Transceiver Test Set case, first place all other adapters in the compartment so that the Test Adapter is on top. The Test Adapter should be set in an upright position (meter face up) and the resilient protective padding should be placed over the Adapter. This procedure will protect the meter face during transportation.

2-5. ADJUSTMENT

2-6. The Test Adapter has been adjusted and tested prior to shipment, however, each adapter must be calibrated to the individual Transceiver Test Set to which it is assigned. Prior to use, verify that the Transceiver Test Set (Model T-906 or P-806) TRANSMITTER RECEIVER PERFORMANCE meter has been properly calibrated as described in the applicable Instruction Manual for that model.

2-7. INSTALLATION

2-8. The Test Adapter MX-6877/URT-21 is designed for use with the Transceiver Test Set Model T-906 and MX-6878/URT-21 is designed to be used with Transceiver Test Set Model P-806. Place both Test Set and Test Adapter on a flat surface and connect P1 of the Test Adapter to J106 of the Test Set.

SECTION III
OPERATING PROCEDURES

3-1. GENERAL

3-2. The operating procedures are described using a Test Adapter, in conjunction with a Transceiver Test Set, to check the performance of Beacon Set, Radio AN/URT-21. The operating procedures consists of a RF power output test and a battery test. (See figure 3-1).

3-3. RF POWER OUTPUT TEST. This test should be performed each time the parachute is repacked or every 30 days, whichever occurs first.

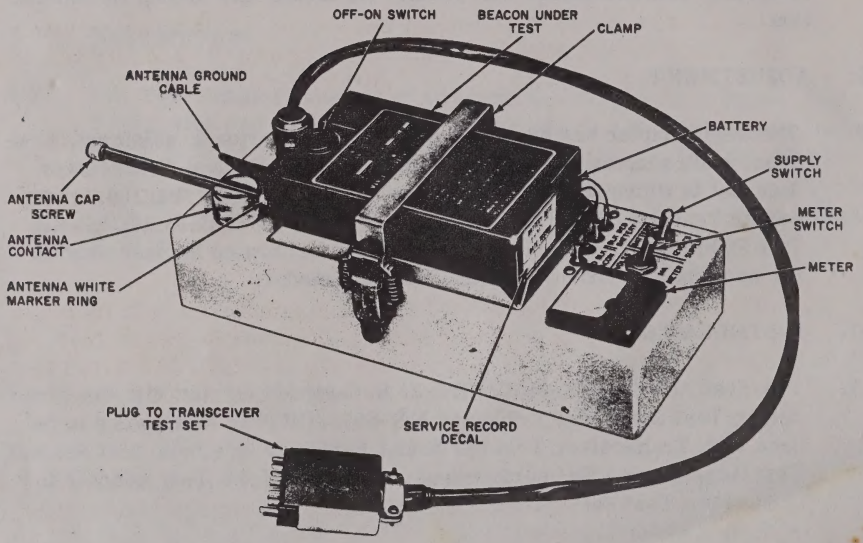


Figure 3-1. Beacon Set, Radio AN/URT-21 Attached to Test Adapter

a. Position Transceiver Test Set switches as follows:

(1) RECEIVE/TRANSMIT switch in "TRANSMIT" position.

(2) Power Switch in "INTERNAL POWER" position.

(3) Meter function switch in "URC-10 VOLTAGE" position for Transceiver Test Set Model T-906 and in the "PLATE VOLTAGE" position for Transceiver Test Set Model P-806.

b. With the beacon switch in the "OFF" position remove lanyard plug.

c. Unwind lanyard retention cord from around the beacon case.

d. Fully extend the largest section of telescopic antenna (other sections collapsed) so that white ring is visible.

e. Place beacon on the Test Adapter and secure with snap action clamp. Attach the ground wire to flexible antenna connector and turn beacon switch to "ON" position.

f. The beacon output has a pulsating duty cycle. Read the meter at point of maximum upward swing. An acceptable beacon will read in the ACCEPT region of the TRANSMITTER RECEIVER PERFORMANCE meter. If meter reads in REJECT region continue testing per paragraph 3-4 (BATTERY TEST).

g. Remove beacon. Collapse last section of antenna one-half its length so that white ring is no longer visible. Reattach beacon to Test Adapter per paragraph 3-3 e. and observe that the TRANSMITTER RECEIVER PERFORMANCE meter reads in the REJECT region. If meter reads ACCEPT, reject beacon due to faulty antenna switch.

h. Turn beacon to "OFF" position, reinsert lanyard plug, and remove beacon from Test Adapter. Secure telescopic antenna, finger tight, using antenna cap screw.

i. Record date of beacon test on decal located on bottom of beacon.

3-4. BATTERY TEST. The battery test is to be performed only if beacon has been rejected for low RF power.

NOTE

Mercury cells provide nearly constant voltage under load until end of its life has been reached, therefore the battery test only indicates the present state of the battery and does not determine its remaining life.

a. Position the switches of the Transceiver Test Set as described in paragraph 3-3 a.

b. Remove battery cover plate from beacon and disconnect battery and beacon terminals.

c. With battery still within beacon and with flexible antenna extended as described in paragraph 3-3 d. secure beacon per paragraph 3-3 e. to the Test Adapter. Observe lead color code and connector markings while connecting the beacon and battery terminals to the Test Adapter connectors (BEACON and BATTERY).

d. With the METER switch in the "VOLTS" position, the SUPPLY switch in the "BATTERY" position and the beacon switch in the "OFF" position, observe the open circuit battery voltage meter reading (13.5 volts nominal). If battery voltage is 12.5 volts or less replace battery.

e. Turn beacon switch "ON". Observe meter reading (12 volts nominal).

f. Place METER switch to "MA" and observe meter swing. Check battery by observing that meter swing is relatively the same with SUPPLY switch in "BATTERY" and "12 VOLTS" position.

NOTE

If TRANSMITTER RECEIVER PERFORMANCE meter reads in the ACCEPT region with the SUPPLY switch in the "12 VOLTS" position and in the REJECT region with the SUPPLY switch in the "BATTERY" position, replace battery. If the beacon reads in the REJECT region under both switch settings, replace beacon.

g. Turn beacon switch "OFF" and remove connections from the Test Adapter and remove beacon.

h. Reconnect beacon and battery connectors and install battery cover plate.

NOTE

In order to insure maximum beacon life, the battery should be replaced after extensive operation or after a maximum of two years from date of installation.

i. If battery is replaced, record date on decal located on bottom of beacon.

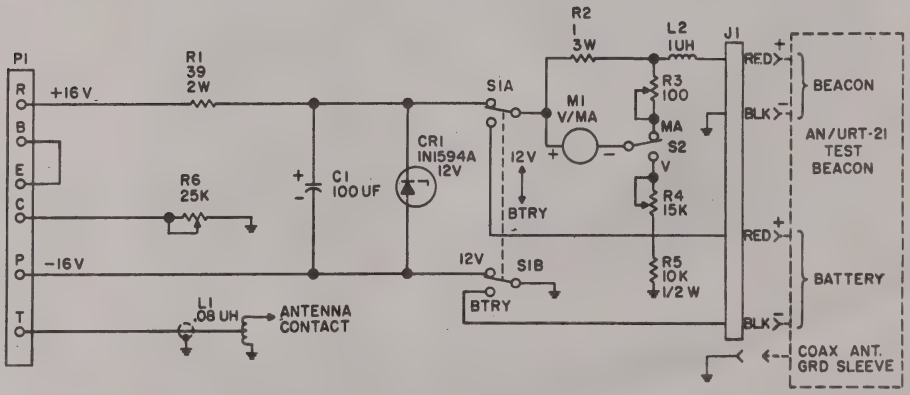
SECTION IV
THEORY OF OPERATION

4-1. GENERAL

4-2. The theory of operation for the Test Adapter is divided into the supply circuit, meter circuit and RF power circuit.

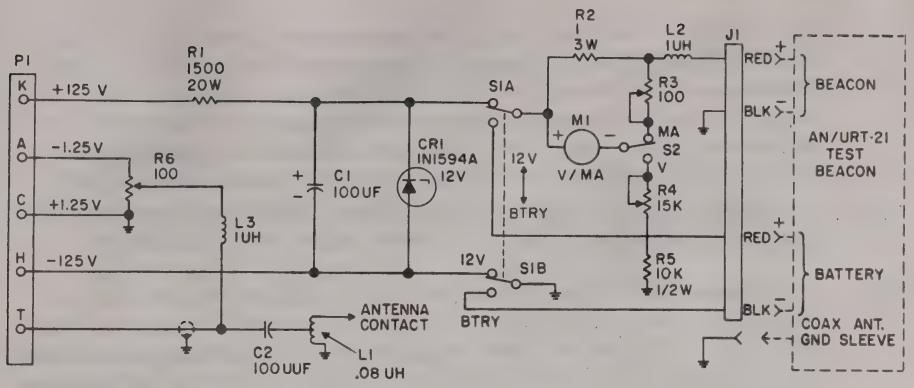
4-3. SUPPLY CIRCUIT. The 12 volt zener regulated supply for Test Adapter MX-6877/URT-21 (see figure 4-1) is derived from the 16 volt DC supply (pins R and P of J106) of the Transceiver Test Set. R1 is a current limiting resistor and C1 a current storage capacitor. Approximately 100 milliamperes are continuously drawn from the 16 volt supply. The beacon under test draws a peak current of 200 milliamperes on a pulsating duty cycle. The additional 100 milliamperes required during the on period are furnished by capacitor C1.

4-4. The 12 volt zener regulated supply for Test Adapter MX-6878/URT-21 (see figure 4-2) is derived from the 125 volt DC supply (pins K and H of J106) of the Transceiver Test Set. Resistor R1 and capacitor C1 provide the same function as described for Test Adapter MX-6877/URT-21.



LAST NO. USED
C1
CR1
J1
L2
M1
P1
R6
S2

Figure 4-1. Test Adapter MX-6877/URT-21, Schematic Diagram



LAST NO. USED
C2
CR1
J1
L3
M1
P1
R6
S2

Figure 4-2. Test Adapter MX-6878/URT-21, Schematic Diagram

4-5. METER CIRCUIT. The meter, M1, serves as either a 0-to-100 MA meter or a 0-to-15 voltmeter. This meter has a basic meter movement of 0-to-1 milliamperes. When the METER switch is switched to the "VOLTS" position, the meter is placed in series with both a fixed 10,000 ohm resistor (R5) and an adjustable 15,000 ohm resistor (R4) across the beacon supply terminals. By adjusting the total circuit resistance to 15,000 ohms, the meter acts as a 0-to-15 volt voltmeter with a resistance of 1000 ohms per volt. Resistor R5 protects the meter from excessive current during calibration in the event the adjustable resistor R4 is inadvertently set at a minimum resistance.

4-6. When the METER switch is placed to the "MA" position the meter is connected in series with a 0-to-100 ohm variable resistor (R3) and this combination is in parallel with a one ohm resistor (R2). By adjusting the series circuit until the total resistance is approximately 100 ohms the meter acts as a 0-to-100 milliampere current meter.

4-7. RF POWER CIRCUIT. Test Adapter MX-6877/URT-21 (see figure 4-1) telescopic antenna contact is fed to the top of impedance matching coil L1. A 50 ohm tap on L1 is fed through a 50 ohm RG-58/U coaxial cable to pin T of P1. The RF signal is then fed through P106 of the Transceiver Test Set (Model T-906) to the detecting circuit. The rectified

signal is fed through the 0-to-100 microampere TRANSMITTER RECEIVER PERFORMANCE meter, through an adjustable 0-to-25,000 potentiometer and through a 15,000 ohm resistor to ground. The junction of the potentiometer and resistor is fed to pin C of P106. By adjustment of R6 (0-to-25,000 ohm potentiometer) the sensitivity of the PERFORMANCE meter is adjusted until it reads one-half of full scale deflection with a detected input signal from a beacon under test which has been adjusted for an RF power output of 200 milliwatts.

4-8. Test Adapter MX-6878/URT-21 (see figure 4-2) operates similar to Test Adapter MX-6877/URT-21; however, since the Transceiver Test Set Model P-806 does not have the same type of detecting circuit, changes were required. Unlike the Model T-906, the sensitivity of the detecting circuitry in the P-806 cannot be adjusted. With the fixed sensitivity of the Model P-806, a 200 milliwatt RF power output from the beacon under test will not give one-half of full scale deflection. This is caused by the on-off characteristic of the beacon transmission and by the nature of the detecting circuitry. To remedy this situation a DC forward bias is supplied to the detecting circuit.

4-9. The 1.25 volt DC voltage (pins A and C of P1) are fed to R6, a 0-to-100 ohm potentiometer. The adjustable potentiometer tap is fed through the RF isolation choke L3 to the 50 ohm coaxial output cable. Capacitor C2 acts as a DC blocking capacitor. With a 200 milliwatt RF power signal from the beacon under test, R6 is adjusted until the PERFORMANCE meter reads one-half of full scale.

4-10. Inductor L2 is an RF isolation choke and assures similar power output readings from the beacon when battery is connected directly to the beacon and when it is connected through the Test Adapter to the beacon.

SECTION V
MAINTENANCE

5-1. GENERAL

5-2. The Test Adapter has been calibrated prior to shipment, however, since the sensitivity of Transceiver Test Set and its assigned Test Adapter may differ, recalibration of the adapter is required.

5-3. STANDARD TEST CONDITIONS

5-4. When calibrating meter M1, a power supply adjusted to 12.0 ±0.5 volts shall be connected to the battery terminals of J1 and a 120 ohm, 2 watt 5 percent resistor shall be connected to the beacon terminals of J1.

5-5. When calibrating RF power a AN/URT-21 Test Beacon, which has been adjusted for 200 milliwatts of RF power output, shall be installed in the Test Adapter.

5-6. ALIGNMENT AND TEST PROCEDURES

5-7. VOLTMETER ALIGNMENT. Connect the equipment as shown in figure 5-1 and proceed as follows.

a. Place SUPPLY switch in the "BATTERY" position.

b. Place METER switch in the "VOLTS" position.

c. Adjust R4 for a 12.0 ±0.5 volt reading on meter, M1.

d. After R4 adjustment, tighten shaft lock-nut without turning shaft.

5-8. MILLIAMMETER ALIGNMENT. Connect the equipment as shown in figure 5-1 and proceed as follows.

a. Place SUPPLY switch in the "BATTERY" position.

b. Place METER switch in the "MA" position.

c. Adjust the power supply voltage for a 100 milliampere reading on external meter, then adjust R3 for full scale deflection on meter M1.

d. After R3 adjustment, tighten shaft lock-nut without turning shaft.

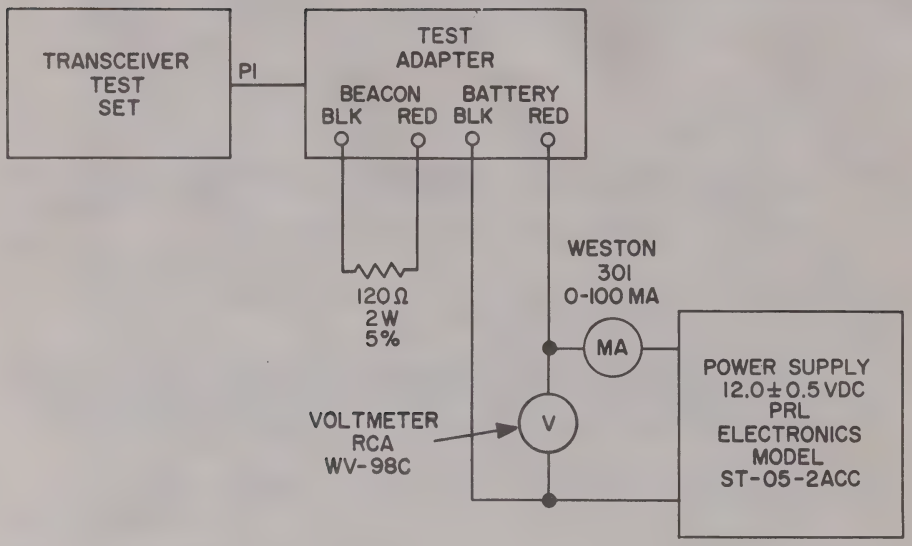


Figure 5-1. Meter Calibration Test Setup

5-9. ZENER DIODE. Connect the equipment as shown in figure 5-1 and proceed as follows.

a. Remove 120 ohm resistor from beacon terminals of J1.

b. Place the SUPPLY switch in the "12 VOLTS" position.

c. Place METER switch in the "VOLT" position.

d. Observe the voltmeter readings; if the voltmeter reads less than 11.4 or greater than 12.6 volts replace the Zener diode CR1. If the voltmeter reads within this range the Zener diode is operating properly.

5-10. RF POWER ALIGNMENT. Connect the equipment as shown in figure 5-2 and proceed as follows.

a. Place the METER switch in the "VOLTS" position.

b. Place the SUPPLY switch in the "BATTERY" position.

c. Adjust the Power Supply voltage to that value which gives 200 milliwatts of RF power output from the AN/URT-21 Test Beacon (see paragraph 5-11 for method of determining voltage value).

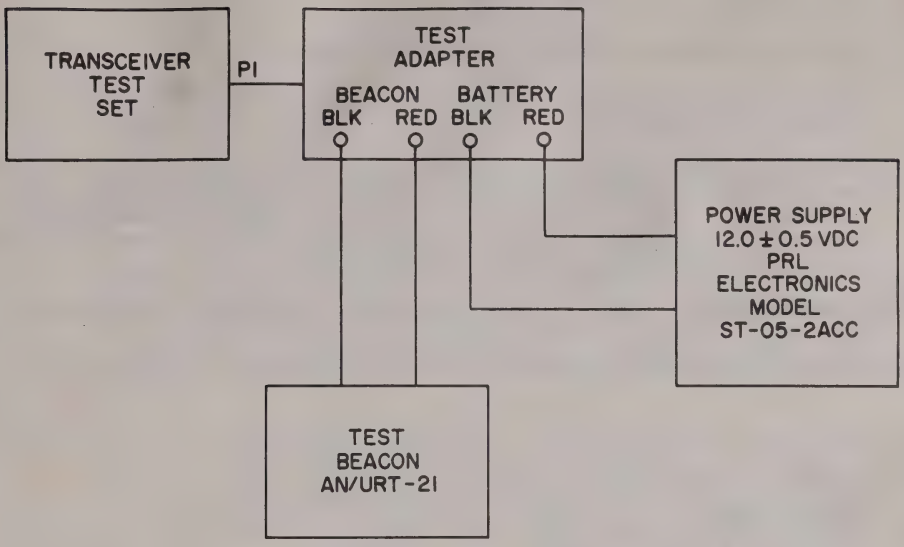


Figure 5-2. RF Power Calibration Test Setup

d. Adjust R6 until the Transceiver Test Set TRANSMITTER RECEIVER PERFORMANCE meter reads one-half of full scale deflection.

NOTE

Because of the 0.4 second on and 0.4 second off transmitter duty cycle of the AN/URT-21 Test Beacon, the performance meter will fluctuate. Meter reading is to be observed at maximum upward swing of pointer.

e. After R6 adjustment, tighten shaft lock-nut without turning shaft.

5-11. 200 MW POWER CALIBRATION OF AN/URT-21 BEACON. Any Beacon Set, Radio AN/URT-21 can be calibrated to an RF power output of 200 MW by adjusting the DC supply voltage to the proper value. The following procedure may be used to determine this voltage value.

a. Remove the battery cover plate from a Beacon Set, Radio AN/URT-21 and disconnect the battery from the beacon.

b. Connect an adjustable 0-to-12 volt power supply to the beacon terminals (red lead positive and black lead negative).

c. Connect the equipment as shown in figure 5-3.

d. Set the supply switch on the MX-6877 (MX-6878) to "Battery."

e. Fully extend the largest section of the URT-21 telescopic antenna (other sections collapsed) so that the white ring is visible.

f. With the H-P 410B probe tip touching the URT-21 antenna at the antenna contact point of the MX-6877 (MX-6878), adjust the external DC power supply voltage until 8.94 volts AC is read on the H-P 410B Meter. As the URT-21 has a pulsating output, the 8.94 volts should be read at the maximum upward swing. A short ground clip should be attached between the H-P 410B AC probe body and the chassis of the MX-6877 (MX-6878).

g. When 8.94 volts AC is read on the H-P 410B, the URT-21 has an output power of 200 mw.

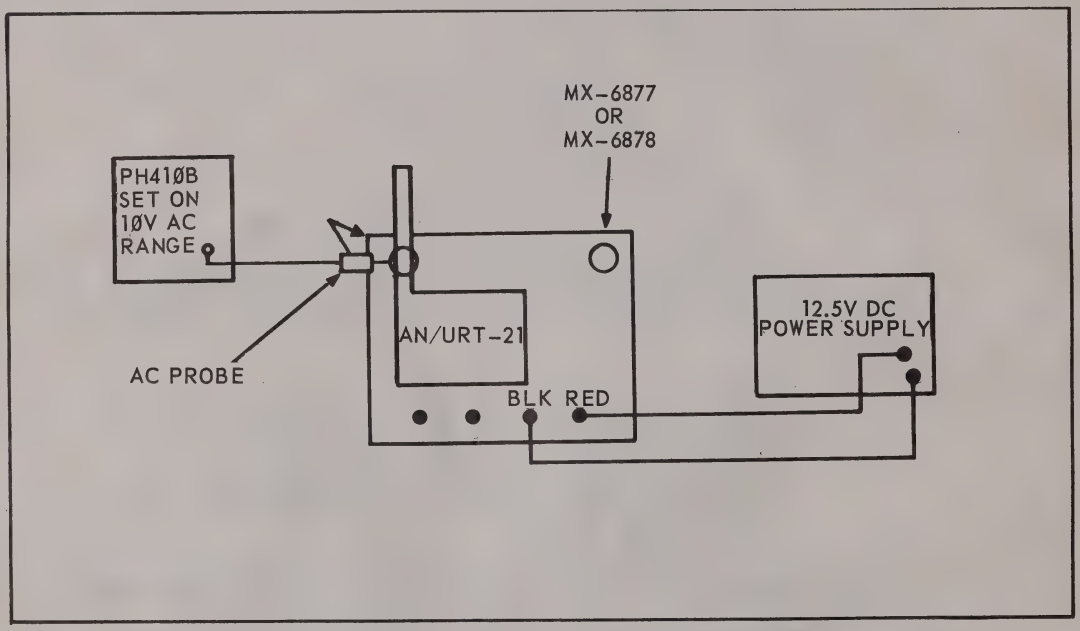


Figure 5-3. Test Beacon AN/URT-21 RF Calibration Test Setup

SECTION VI
REPLACEABLE PARTS

6-1. GENERAL

6-2. Replaceable parts are listed for Test Adapter MX-6877/URT-21 and MX-6878/URT-21.

6-3. TEST ADAPTER MX-6877/URT-21. Replaceable parts for Test Adapter MX-6877/URT-21 are shown in figure 6-1 and identified by index numbers. The index numbers are keyed to the table of replaceable parts. Index numbers with a single asterisk (*) identify parts used on MX-6877/URT-21 only.

6-4. TEST ADAPTER MX-6878/URT-21. Replaceable parts for Test Adapter MX-6878/URT-21 are shown in figure 6-2 and identified by index numbers. The index numbers are keyed to the table of replaceable parts. Index numbers with a double asterisk (**) identify parts used on MX-6878/URT-21 only.

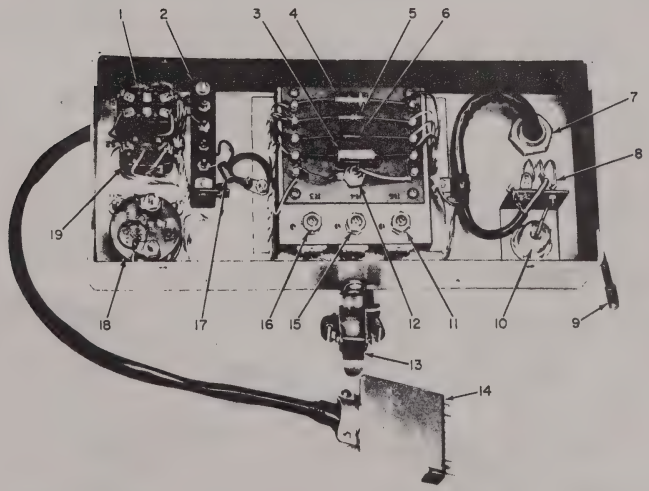


Figure 6-1. Test Adapter MX-6877/URT-21, Bottom Plate Removed

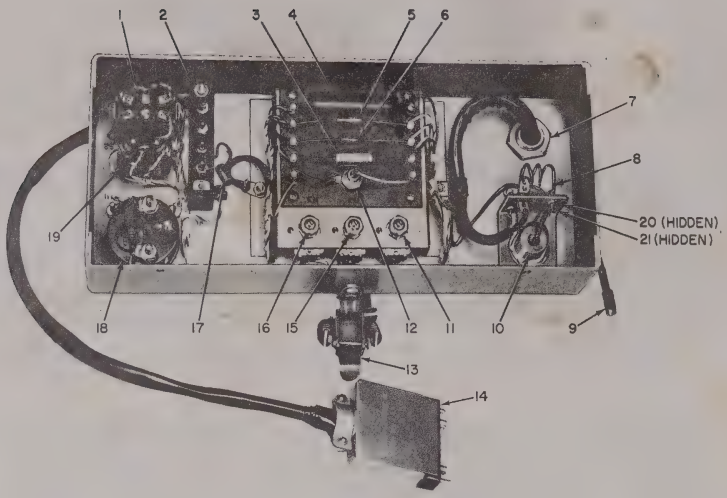


Figure 6-2. Test Adapter MX-6878/URT-21, Bottom Plate Removed

TABLE OF REPLACEABLE PARTS

Index No.	Ref.	Description	Military Standard or Magnavox Part No.
1	S1	Switch	MS35059-23
2	J1	Plug	188911-801
3	C1	Capacitor	CS13AE101K
4*	R1	Resistor	RC42GF390K
4**	R1	Resistor, Wire Wound, 1500 Ohm, 20 Watt	245001-8
5	R2	Resistor	RW69V1R0
6	R5	Resistor	RC20GF103K

TABLE OF REPLACEABLE PARTS (CONT)

Index No.	Ref.	Description	Military Standard or Magnavox Part No.
7	--	Clamp, Cable Retaining	188913-2
	--	Washer, 5/8 inch Internal Tooth	107006-525
	--	Sleeving, Cable	445007-919
	--	Clamp, Loop	NAS1397K5B
	--	Washer, Loop Clamp	109605-5
8	L1	Inductor 0.08 MHY	368433-1
	--	Terminal	208899-1
9	W1	Wire, Ground Assembly	469603-801
10	--	Insulator	446361-1
	--	Contact	168618-1
	--	Spring, Compression	438133-1
	--	Washer, 5/8 inch, Internal Tooth	MS35333-80
	--	Nut, 5/8 x 24	107252-302
	--	Pin, Cotter	MS24665-153
11*	R6	Resistor	RV5LAXSB253A
11**	R6	Resistor	RV5LAXSB101A
12	CR1	Diode	1N1594A
13	--	Latch	SC-D-20640
	--	Pad, Cushioning	999434-1

TABLE OF REPLACEABLE PARTS (CONT)

Index No.	Ref.	Description	Military Standard or Magnavox Part No.
14	P1	Connector and Hood, 14 Contact, Rectangular with two coaxial contacts	188912-1
15	R4	Resistor	RV5LAXSB153A
16	R3	Resistor	RV5LAXSB101A
17	L2	Inductor	MS75008-28
	--	Standoff	208955-1
18	M1	Meter	557870-1
19	S2	Switch	MS35058-23
20**	C2	Capacitor, 100 MMFD	255002-125
21**	L3	Inductor	MS75008-28

* Used on MX-6877/URT-21 only

** Used on MX-6878/URT-21 only

FIGURE AND INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY
12-	P-02129	CHASSIS ASSEMBLY (See item 13, Figure 7)	REF
-1	191	. SHIELD - 9 pin tube (19695)	4
12-	933	. INSERT - Tube shield (19695)	4
-2	5814A	. TUBE, ELECTRON	1
-3	5751	. TUBE, ELECTRON	1
12-	6U8	. TUBE, ELECTRON	1
-4	149	. SHIELD - 7 pin tube (19695)	2
12-	931	. INSERT - Tube shield (19695)	2
-5	OB2	. TUBE, ELECTRON	2
-6	5Y3-GT	. TUBE, ELECTRON	2
-7	195	. SHIELD - 9 pin tube (19695)	1
12-	934	. INSERT - Tube shield (19695)	1
-8	12BH7	. TUBE, ELECTRON	1
-9	120	. SHIELD - 7 pin tube (19695)	2
12-	930	. INSERT - Tube shield (19695)	2
-10	6AU6	. TUBE, ELECTRON	1
-11	5651	. TUBE, ELECTRON	1
-12	TQ40X40-480	. CAPACITOR, FIXED - 2 sect, 40 uf ea sect, 480 V (72669 Type TQ)	2
-13	PCE-4000-10	. CAPACITOR, FIXED - 4000 uf, 10 V (72669 Type PFM)	2
-14	TF-4RX10YY	. TRANSFORMER, AUDIO	1
-15	RC20GF470K	. RESISTOR, FIXED, COMP	2
-16	P-0807	. RESISTOR, VARIABLE - 50 ohm	1
-17	JLU-504	. RESISTOR, VARIABLE - 50K ohm (01121)	1
		(ATTACHING PARTS)	
-18	1029	. SHAFTLOCK (08730)	2
-19	COML	. NUT, PLAIN, HEX - (Supplied with items 16, 17)	4
		---*---	
-20	TF1RX03JB002	. TRANSFORMER - Power	2
-21	P-0281	. BRACKET - Mtg, terminal board	1
-22	333	. TERMINAL - Solder lug (79963)	4
		(ATTACHING PARTS)	
-23	COML	. NUT, PLAIN, HEX - (Supplied with item 20)	4
-24	COML	. WASHER, LOCK - (Supplied with item 20)	4
		---*---	
-25	TF1RX01FB006	. TRANSFORMER - Power	1
		(ATTACHING PARTS)	
-26	COML	. NUT, PLAIN, HEX - (Supplied with item 25)	4
-27	COML	. WASHER, LOCK - (Supplied with item 25)	4
		---*---	
-28	TF1RX13AJ002	. TRANSFORMER - Audio	1
		(ATTACHING PARTS)	
-29	COML	. NUT, PLAIN, HEX - (Supplied with item 28)	4
-30	COML	. WASHER, LOCK - (Supplied with item 28)	4
		---*---	
-31	P-1519	. RF GENERATOR AND ATTENUATOR	1
		(ATTACHING PARTS)	
-32	AN500 -4-4	. SCREW, MACHINE	4
12-	AN935-4	. WASHER, LOCK	4
		---*---	
-33	P-0918-1	. JACK - Phone tip, red	5
-34	P-0918-2	. JACK - Phone tip, black	5
		(ATTACHING PARTS)	
-35	COML	. NUT, PLAIN, HEX - (Supplied with items 33, 34)	10
		---*---	
-36	57-40240	. CONNECTOR, RECEPTACLE, ELECTRICAL - 24 pin (02660)	1

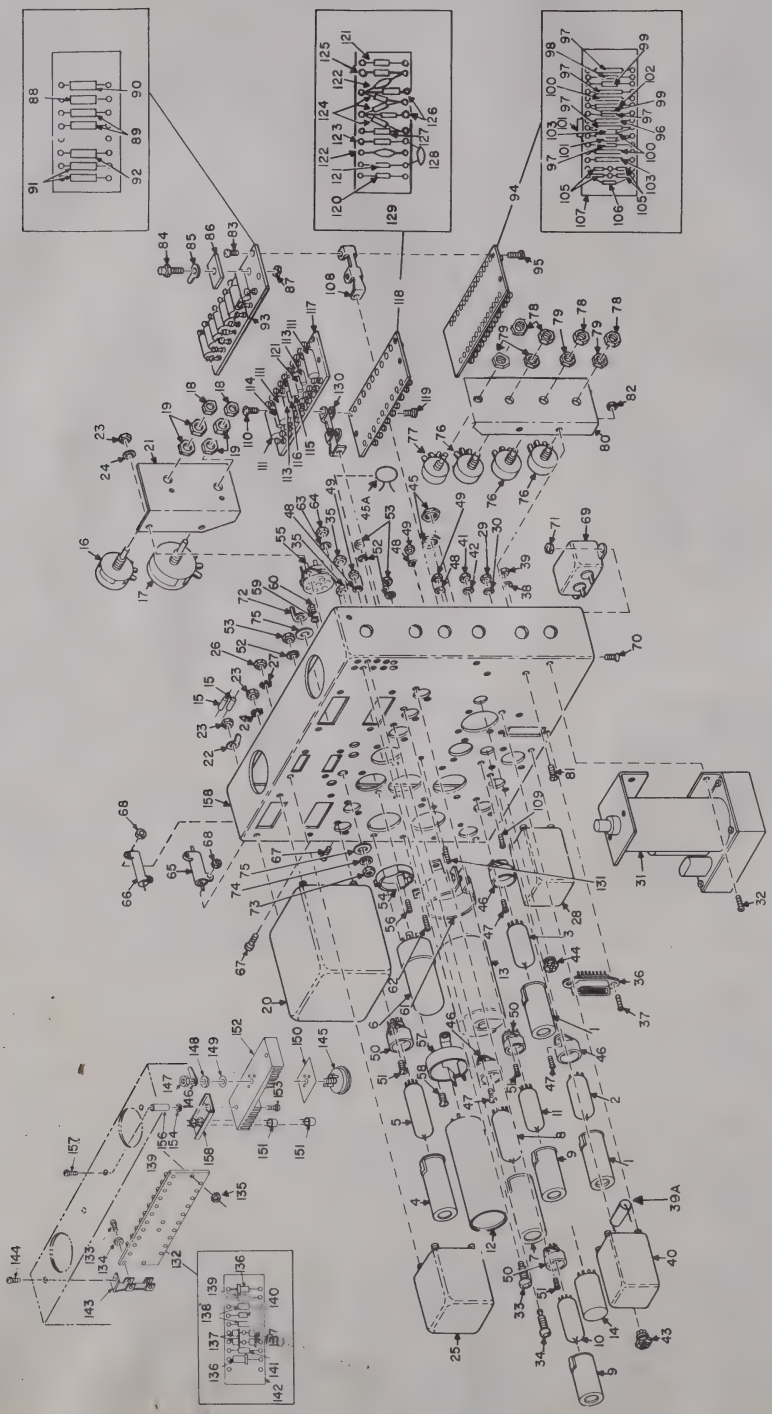


Figure 12. Chassis Assembly, Exploded View

FIGURE AND INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY
12-		(ATTACHING PARTS)	
-37	AN500-6-5	. SCREW, MACHINE	4
-38	MS35333-3	. WASHER, LOCK	4
-39	AN340-6	. NUT, PLAIN, HEX	4
		---*---	
-39A	835024Z5U0203P	. CAPACITOR, FIXED - 0.02 uf, 200 V (72982)	1
-40	TF4RX13AJ	. TRANSFORMER	1
		(ATTACHING PARTS)	
-41	COML	. NUT, PLAIN, HEX - (Supplied with item 40)	4
-42	COML	. WASHER, LOCK - (Supplied with item 40)	4
		---*---	
-43	126-102	. CONNECTOR, RECEPTACLE, ELECTRICAL - 7 pin (02660)	1
-44	126-011	. CONNECTOR, RECEPTACLE, ELECTRICAL - 5 pin (02660)	1
		(ATTACHING PARTS)	
-45	COML	. NUT, PLAIN, HEX - (Supplied with items 43, 44)	2
		---*---	
-45A		. CAPACITOR, FIXED - Mica disc, 470 pf	1
-46	TS103C01	. SOCKET - Tube, 9 pin min	4
		(ATTACHING PARTS)	
-47	AN500-4-4	. SCREW, MACHINE	8
-48	MS35333-36	. WASHER, LOCK	8
-49	AN340-4	. NUT, PLAIN, HEX	8
		---*---	
-50	TS102C01	. SOCKET - Tube, 7 pin min	4
		(ATTACHING PARTS)	
-51	AN500-4-4	. SCREW, MACHINE	8
-52	MS35333-36	. WASHER, LOCK	8
-53	AN340-4	. NUT, PLAIN, HEX	8
		---*---	
-54	2601-2	. CLAMP - Electron tube (91506)	2
-55	TS101P02	. SOCKET - Tube, octal	2
		(ATTACHING PARTS)	
-56	AN500-6-5	. SCREW, MACHINE	4
		---*---	
-57	358-2	. CLAMP - Capacitor (72669)	2
		(ATTACHING PARTS)	
-58	AN500-6-5	. SCREW, MACHINE	4
-59	MS35333-37	. WASHER, LOCK	4
-60	AN340-6	. NUT, PLAIN, HEX	4
		---*---	
-61	VR-6	. CLAMP - Capacitor (37942)	2
		(ATTACHING PARTS)	
-62	AN500-6-5	. SCREW, MACHINE	4
-63	MS35333-37	. WASHER, LOCK	4
-64	AN340-6	. NUT, PLAIN, HEX	4
		---*---	
-65	TMA-25W	. RESISTOR, FIXED - WW, 750 ohm +10%, 25w (02985)	1
-66	RE75G1R00	. RESISTOR, FIXED - WW, 1 ohm +10%, 25w (02985)	1
-66A	RW32V252	. RESISTOR, FIXED - WW, 2500 ohm	1
		(ATTACHING PARTS)	
-67	AN509-4-7	. SCREW, MACHINE	4
-68	AN340-4	. NUT, PLAIN, HEX	4
		---*---	
-69	BS-65	. CAPACITOR, FIXED -20 uf, 300 V (72699 Type DPD)	1
		(ATTACHING PARTS)	
-70	AN509-4-7	. SCREW, MACHINE	2
-71	AN340-4	. NUT, PLAIN, HEX	2
		---*---	

FIGURE AND INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY
12-72	P-06105	. TERMINAL - Solderless, No. 6	4
		(ATTACHING PARTS)	
-73	AN340-6	. NUT, PLAIN, HEX	4
-74	MS35333-37	. WASHER, LOCK	4
-75	COML	. WASHER - Insulating, No. 6	8
		---*---	
-76	JA1L040S105MC	. RESISTOR, VARIABLE - 1 megohm (12697)	3
-77	4302-750	. RESISTOR, VARIABLE - 750 ohm, 2 w (12697)	1
		(ATTACHING PARTS)	
-78	COML	. NUT, LOCK	4
-79	COML	. NUT, PLAIN, HEX - (Supplied with items 76 and 77)	4
		---*---	
-80	P-07124	. BRACKET - Resistor	1
		(ATTACHING PARTS)	
-81	AN500-6-5	. SCREW, MACHINE	2
-82	AN340-6	. NUT, PLAIN, HEX	2
		---*---	
12-	P-1328	. BOARD ASSEMBLY	1
		(ATTACHING PARTS)	
-83	AN500-6-5	. SCREW, MACHINE	2
		---*---	
-84	1N253	. . RECTIFIER - Silicone (81349)	5
-85	COML	. . TERMINAL - Solder	1
-86	P-02109	. . HEATSINK	1
		(ATTACHING PARTS)	
-87	COML	. . NUT, PLAIN, HEX - (Supplied with item 84)	5
		---*---	
-88	PRW-100K2	. . RESISTOR, FIXED, WW - 1 ohm ±10%, 2 w (75042 Type BWH)	1
-89	RC20GF163K	. . RESISTOR, FIXED, COMP	2
-90	RC20GF472K	. . RESISTOR, FIXED, COMP	1
-91	CP05AIEE223K	. . CAPACITOR, FIXED	2
-92	CP05AIKE103K	. . CAPACITOR, FIXED	1
-93	P-1328	. . BOARD - Terminal	1
-94	P-1320	. BOARD ASSEMBLY	1
		(ATTACHING PARTS)	
-95	AN500-6-5	. SCREW, MACHINE	2
		---*---	
-96	RC20GF103K	. . RESISTOR, FIXED, COMP	1
-97	CP05AIKE103K	. . CAPACITOR, FIXED	5
-98	RC20GF106K	. . RESISTOR, FIXED, COMP	1
-99	RC20GF224K	. . RESISTOR, FIXED, COMP	2
-100	PCT-50-10	. . CAPACITOR, FIXED - 50 uf, 10 V (76433 Type MCS12)	3
-101	RC20GF272K	. . RESISTOR, FIXED, COMP	1
-102	RC20GF105K	. . RESISTOR, FIXED, COMP	1
-103	RC20GF182K	. . RESISTOR, FIXED, COMP	2
-104	RC20GF473K	. . RESISTOR, FIXED, COMP	1
-105	1N60	. . DIODE - Silicon	4
-106	PCT-4-12	. . CAPACITOR, FIXED - 4 uf, 12 V (76433 Type MCS-12)	1
-107	P-1320	. . BOARD - Terminal	1
-108	217-1044-P1	. BRACKET - Resistor board (94145)	2
		(ATTACHING PARTS)	
-109	AN500-6-5	. SCREW, MACHINE	2
		---*---	
12-	P-1321	. BOARD ASSEMBLY	1
		(ATTACHING PARTS)	
-110	AN500-6-5	. SCREW, MACHINE	4
		---*---	

FIGURE AND INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY
12-111	CP05AIKE104K	. . CAPACITOR, FIXED	3
-112	RC20GF683K	. . RESISTOR, FIXED, COMP	1
-113	RC20GF473K	. . RESISTOR, FIXED, COMP	2
-114	RC20GF224K	. . RESISTOR, FIXED, COMP	1
-115	CP05AIEE223K	. . CAPACITOR, FIXED	1
-116	RC20GF105K	. . RESISTOR, FIXED, COMP	1
-117	P-1321	. . BOARD - Terminal	1
-118	P-1344	. BOARD ASSEMBLY	1
		(ATTACHING PARTS)	
-119	AN500-6-5	. SCREW, MACHINE	4
		---*---	
-120	RC20GF474K	. . RESISTOR, FIXED, COMP	1
-121	RC20GF102K	. . RESISTOR, FIXED, COMP	2
-122	835024Z5U0202P	. . CAPACITOR, FIXED - 0.002 uf, 100 V (72982)	2
-123	RC20GF103K	. . RESISTOR, FIXED, COMP	1
-124	0811000C0Z00101	. . CAPACITOR, FIXED - Ceramic, 0.1 uf +80 -20%, 200 V (72982)	1
-125	RG20GF475K	. . RESISTOR, FIXED, COMP	1
-126	RC20GF105K	. . RESISTOR, FIXED, COMP	2
-127	RC20GF473K	. . RESISTOR, FIXED, COMP	1
-128	896051Z5U0104Z	. . CAPACITOR, FIXED - Ceramic, 0.1 uf +80 -20%, 200V (72982)	1
-129	P-1344	. . BOARD - Terminal	1
-130	P-0284	. BRACKET - Resistor board	2
		(ATTACHING PARTS)	
-131	AN500-6-5	. SCREW, MACHINE	4
		---*---	
-132	P-1326	. TERMINAL BOARD - 16 V supply	1
		(ATTACHING PARTS)	
-133	AN500-6-5	. SCREW, MACHINE	2
-134	AN960-6	. WASHER, PLAIN	2
-135	AN340-6	. NUT, PLAIN, HEX	1
		---*---	
-136	PCT-60-50	. . CAPACITOR, FIXED - 60 uf, 50 V (76433 Type MCS12)	2
-137	1N530	. . DIODE - Silicon	4
-138	RC30GF562K	. . RESISTOR, FIXED, COMP	2
-139	RC30GF152K	. . RESISTOR, FIXED, COMP	1
-140	1N3022B	. . DIODE - Zenor, 12 V	1
-141	RC20GF102K	. . RESISTOR, FIXED, COMP	1
-142	P-1327	. . BOARD - Terminal	1
-143	P-02124	. BRACKET - Terminal board	1
		(ATTACHING PARTS)	
-144	AN500-6-5	. SCREW, MACHINE	1
		---*---	
-145	2N441	. TRANSISTOR - Power	1
-146	COML	. TERMINAL - Solder	1
		(ATTACHING PARTS)	
-147	COML	. NUT, PLAIN, HEX - (Supplied with item 145)	1
-148	COML	. WASHER, LOCK - (Supplied with item 145)	1
-149	COML	. WASHER - Insulating (supplied with item 145)	1
		---*---	
-150	P-02123	. HEATSINK	1
-151	2N467	. TRANSISTOR - Audio	2
-152	P-02116	. BRACKET - Control mtg	1
		(ATTACHING PARTS)	
-153	AN500-4-6	. SCREW, MACHINE	2
-154	AN935-4	. WASHER, LOCK	2
		---*---	

FIGURE AND INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY
12-155	P-02128	. BRACKET	1
-156	P-0375	. BUSHING - Threaded	2
		(ATTACHING PARTS)	
-157	AN500-6-4	. SCREW, MACHINE	2
		---*---	
-158	P-02129	. CHASSIS - Electrical	1

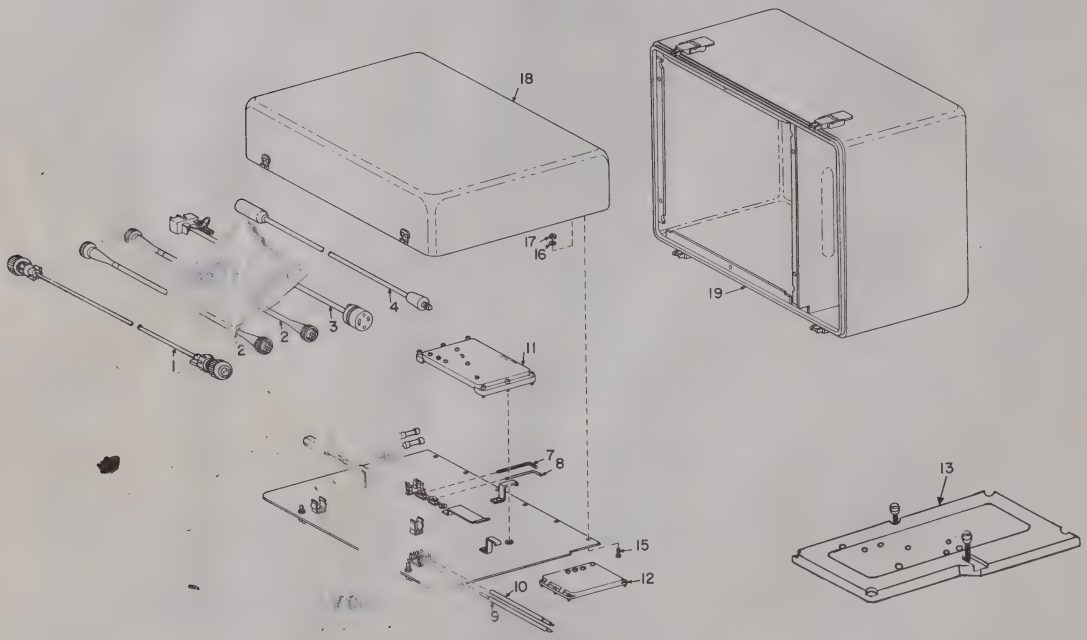


Figure 13. Case Assembly, Exploded View

FIGURE AND INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY
13-	P-0791	CASE ASSEMBLY (See item 16, Figure 7)	REF
-1	P-0932	. CABLE ASSEMBLY	1
-2	P-071	. CABLE ASSEMBLY	2
-3	P-0799	. CABLE ASSEMBLY - AC power	1
-4	P-0798	. CABLE ASSEMBLY - Headset extension	1
-5	P-07103	. SCREWDRIVER - Straight blade	1
-6	F02A250V5A	. FUSE, CARTRIDGE (FSN 5920-284-6787)	2
-7	P-07104	. WRENCH - Allen, 1/16 in.	1
-8	P-07107	. WRENCH - Allen, 0.050 in.	1
-9	2520	. TUNING STICK - Large (04941)	1
-10	2541	. TUNING STICK - Small (04941)	1
-11	P-02111	. COVER - Tuning, AN/URC-4	1
-12	P-02121	. COVER - Tuning, AN/URC-11, AN/URC-24	1
-13	P-0275	. COVER - Tuning, AN/URC-10	1

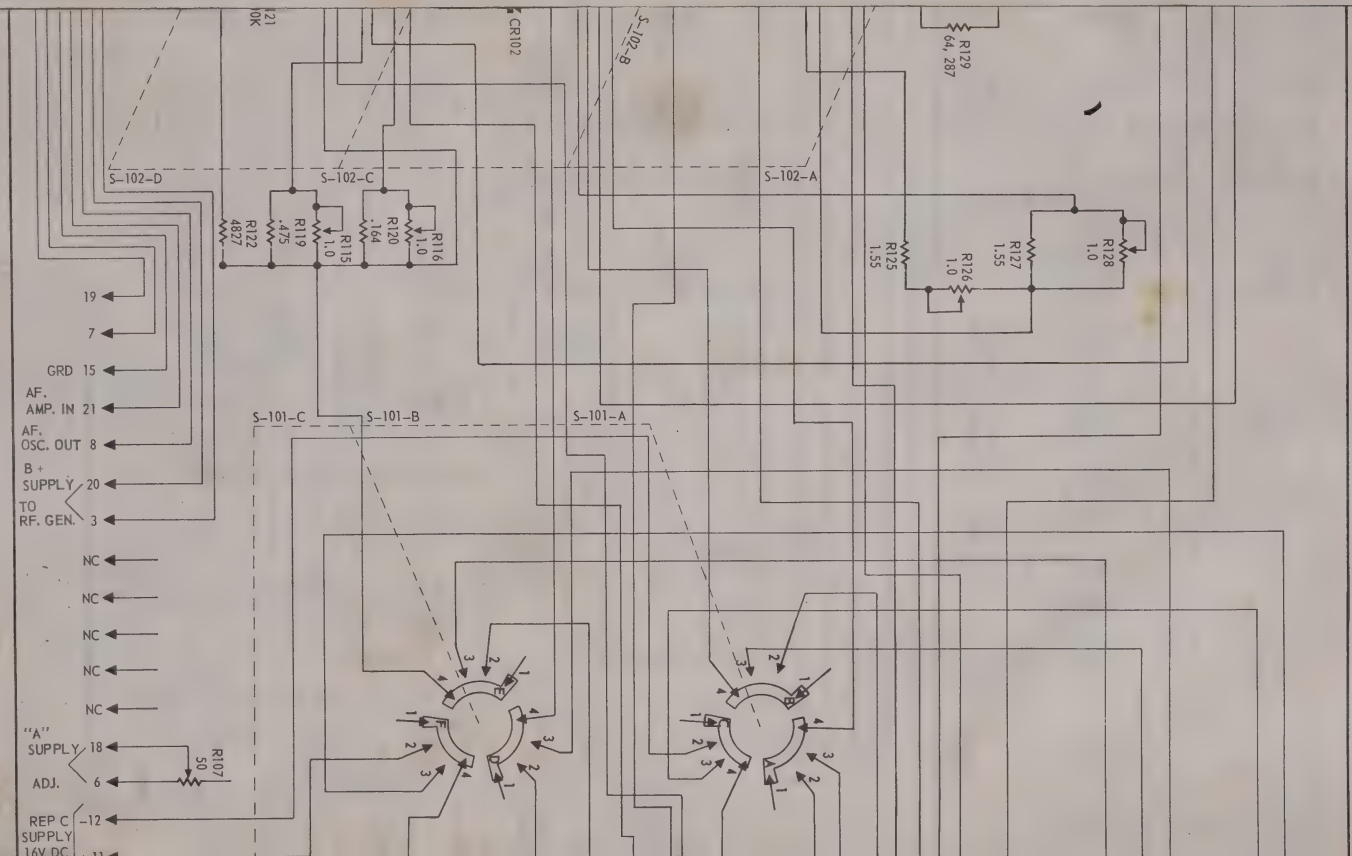
FIGURE AND INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY
13-14	P-06112	. BOARD - Tool mtg	1
		(ATTACHING PARTS)	
-15	AN500-4-7	. SCREW, MACHINE	6
-16	MS35333-36	. WASHER, LOCK	6
-17	AN340-4	. NUT, PLAIN, HEX	6
		---*---	
-18	P-0791-B	. COVER - Case	1
-19	P-0791-A	. CASE - Test set	1

SECTION III
REFERENCE DESIGNATION INDEX

REFERENCE DESIGNATION	FIGURE AND INDEX NO.	PART NO.
R1	12-16	
R2	12-114	RC20GF224J
R3	12-76	JA1L040S105MC
R4	12-76	JA1L040S105MC
R5	12-15	RC20GF470J
R6	12-15	RC20GF470J
R7	12-66A	RW32V252
R8	12-65	
R9	12-66	RE75G1R00
R10	12-88	
R11	12-116	RC20GF105J
R12	12-113	RC20GF473J
R13	12-113	RC20GF473J
R14	12-17	
R15	12-112	RC20GF683J
R16	12-126	RC20GF105J
R17	12-76	JA1L040S105MC
R18	12-126	RC20GF105J
R19	12-125	RC20GF475J
R20	12-127	RC20GF473J
R21	12-98	RC20GF106J
R22	12-99	RC20GF224J
R23	12-99	RC20GF224J
R24	12-101	RC20GF272J
R25	12-96	RC20GF103J
R26	12-102	RC20GF105J
R27	12-104	RC20GF473J
R28	12-103	RC20GF182J
R29	12-103	RC20GF182J
R30	12-120	RC20GF474J
R31	12-121	RC20GF102J
R32	12-123	RC20GF103J
R33	12-121	RC20GF102J
R34		RC20GF224J
R35	12-89	RC20GF163J
R36	12-89	RC20GF163J
R37	12-90	RC20GF472J
R38	12-141	RC20GF102J
R39	12-138	RC32GF562J
R40	12-138	RC32GF562J
R41	12-139	RC32GF152J
R42	12-77	
R107	11-58	
R108	11-19	JA1L040S253UC
R109	11-12	JA1L040S503UC
R110	11-61	RC20GF104J
R111	11-61	RC20GF104J
R112		
R113	11-30	
R114	11-30	
R115	11-30	
R116	11-30	

REFERENCE DESIGNATION	FIGURE AND INDEX NO.	PART NO.
R117	11-39	RS1A4R87F
R118	11-37	
R119	11-41	
R120	11-42	
R121	11-38	RN20X5003F
R112	11-40	
R123	11-12	JA1L040S503UC
R124		
R125	11-37	
R126	11-30	
R127	11-37	
R128	11-30	
R129	11-36	
R130	11-15A	RC20GF153J
R131	11-15B	RC20GF753J
R301	9-28	RC20GF181J
R302	9-29	RC20GF820J
R303	9-29A	RC32GF183J
R401	8-44	RC20GF181J
R402	8-26	RC32GF273J
R403	8-25	RC20GF221J
R404	8-27	RC20GF753J
R501	10-45	RC20GF181J
C1 A&B	12-12	TQ40X40-480
C2 A&B	12-12	TQ40X40-480
C3	12-13	
C4	12-13	
C5	12-69	BS-65
C6	12-111	CP05A1KE104K
C7	12-111	CP05A1KE104K
C8	12-115	CP05A1EE223K3
C9		
C10		
C11		
C12	12-111	CP05A1KE104K
C13	12-97	CP05A1KE103K3
C14	12-97	CP05A1KE103K3
C15	12-97	CP05A1KE103K3
C16	12-97	CP05A1KE103K3
C17	12-100	
C18	12-97	CP05A1KE103K3
C19	12-100	
C20	12-100	
C21	12-106	
C22		
C23		
C24		
C25	12-128	896-1
C26	12-92	CP05A1KE103K3
C27	12-92	CP05A1KE103K3
C28	12-91	CP05A1EE223K3
C29	12-91	CP05A1EE223K3
C30	12-136	
C31	12-136	
C32		
C33	12-45A	CM20D471K
C501	10-44	
C502	10-46	
C503	10-49	
C504	10-49	

REFERENCE DESIGNATION	FIGURE AND INDEX NO.	PART NO.
CR1	12-84	1N253
CR2	12-84	1N253
CR3	12-84	1N253
CR4	12-84	1N253
CR5	12-84	1N253
CR6	12-105	1N60
CR7	12-105	1N60
CR8	12-105	1N60
CR9	12-105	1N60
CR10	12-137	1N530
CR11	12-137	1N530
CR12	12-137	1N530
CR13	12-137	1N530
CR14	12-140	1N3022B
CR101	11-86A	1N21
CR102	11-53A	1N539
DS101		101-5030-933
DS102		101-5030-932
DS103		101-5030-931
F101		F02A250V5A
J1	12-36	57-40240
P2	11-3	126-192
J3	12-44	126-011
J101		
J102		7486
J103		
J104		
J105		
J106		MRX-14-2SG
J107		MS3102A-10-SL-4P
J108		
J2	12-43	126-102
P1	11-5	57-30240
K1	11-85	
K2	11-91	
M101	11-44	P07130
M102	11-23	P07129
Q1	12-145	2N441
Q2	12-151	2N467
Q3	12-151	2N467
S101	11-55	
S102	11-54	
S103	11-53	
S301	9-44	SW724
S401	8-31	
T1	12-20	TF1RX03JB002
T2	12-20	TF1RX03JB002
T3	12-40	TF4RX13AJ
T4	12-28	TF1RX01FB006
T5	12-28	TF1RX13AJ002
T6	12-14	TF4RX10YY
V1	12-6	5Y3GT
V2	12-5	0B2
V3	12-5	0B2
V4	12-6	5Y3GT
V5	12-8	12BH7
V6	12-10	6AU6
V7	12-11	5651
V8	12-4	6U8
V9	12-3	5751
V10	12-2	5814A


S-102-D
S-102-C
S-102-A
S-102-B
CR102
R121
10K
R122
4827
R119
.475
R115
1.0
R120
.164
R116
1.0
R129
64, 287
R125
1.55
R126
1.0
R127
1.55
R128
1.0
19
7
GRD 15
AF. AMP. IN 21
AF. OSC. OUT 8
B + SUPPLY 20
TO RF. GEN. 3
NC
NC
NC
NC
NC
"A" SUPPLY 18
ADJ. 6
R107
50
REP C SUPPLY 16V DC -12
S-101-C
S-101-B
S-101-A

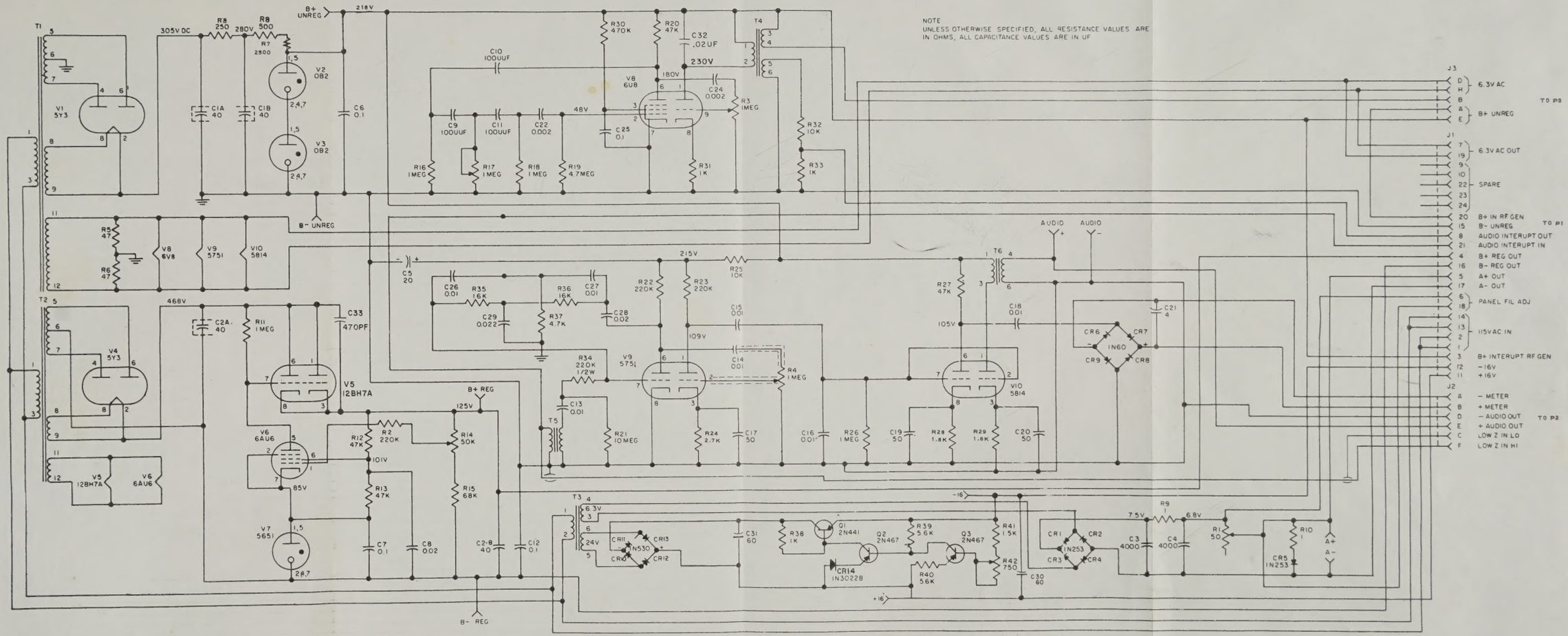


Figure 2. Transceiver Test Set Chassis, Schematic Diagram

SWITCHING OPERATION		
SW NO.	POS.	FUNCTION
101	1	OFF
	2	INTERNAL POWER ON
	3	EXTERNAL BATTERY ON
102	1	URC-10 VOLTS/PLATE VOLTAGE
	2	FILAMENT VOLTAGE
	3	URC-10 CURRENT/PLATE I
	4	FILAMENT CURRENT
103	1	RECEIVE
	2	TRANSMIT

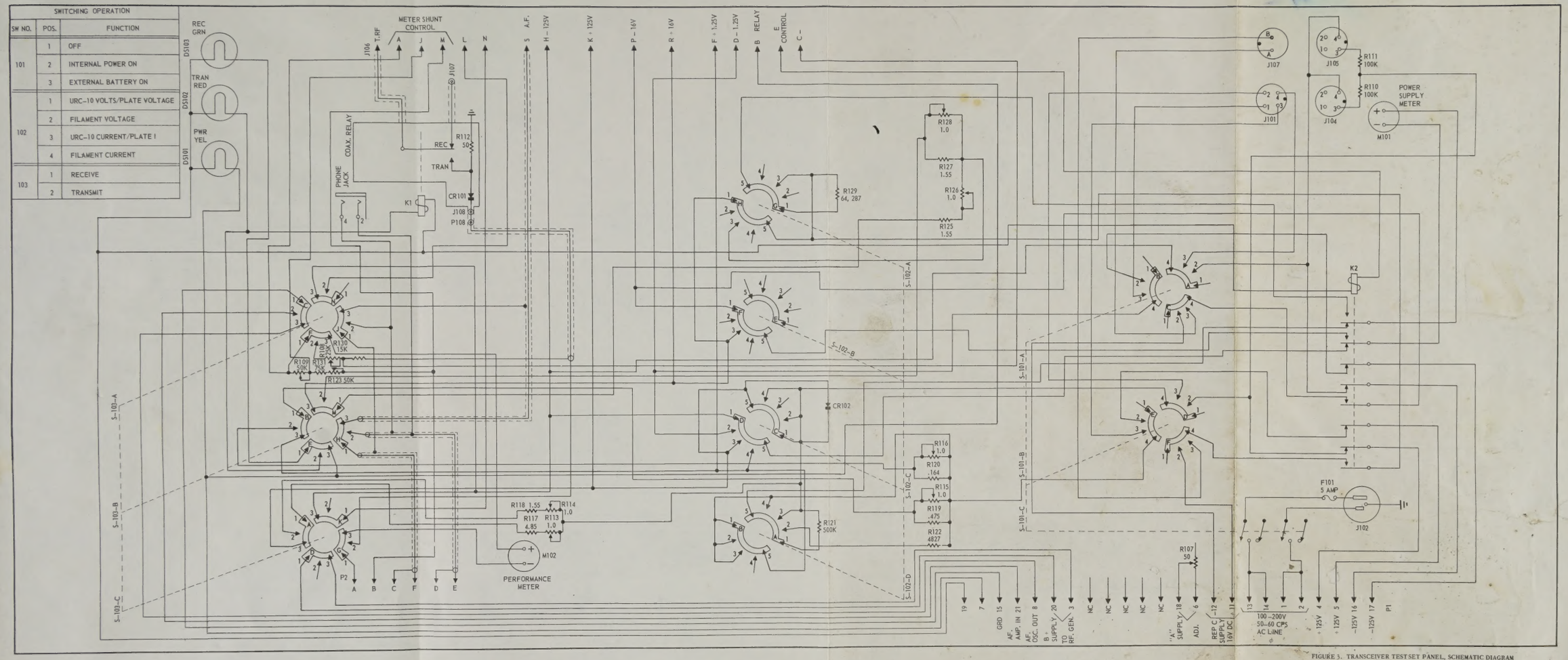
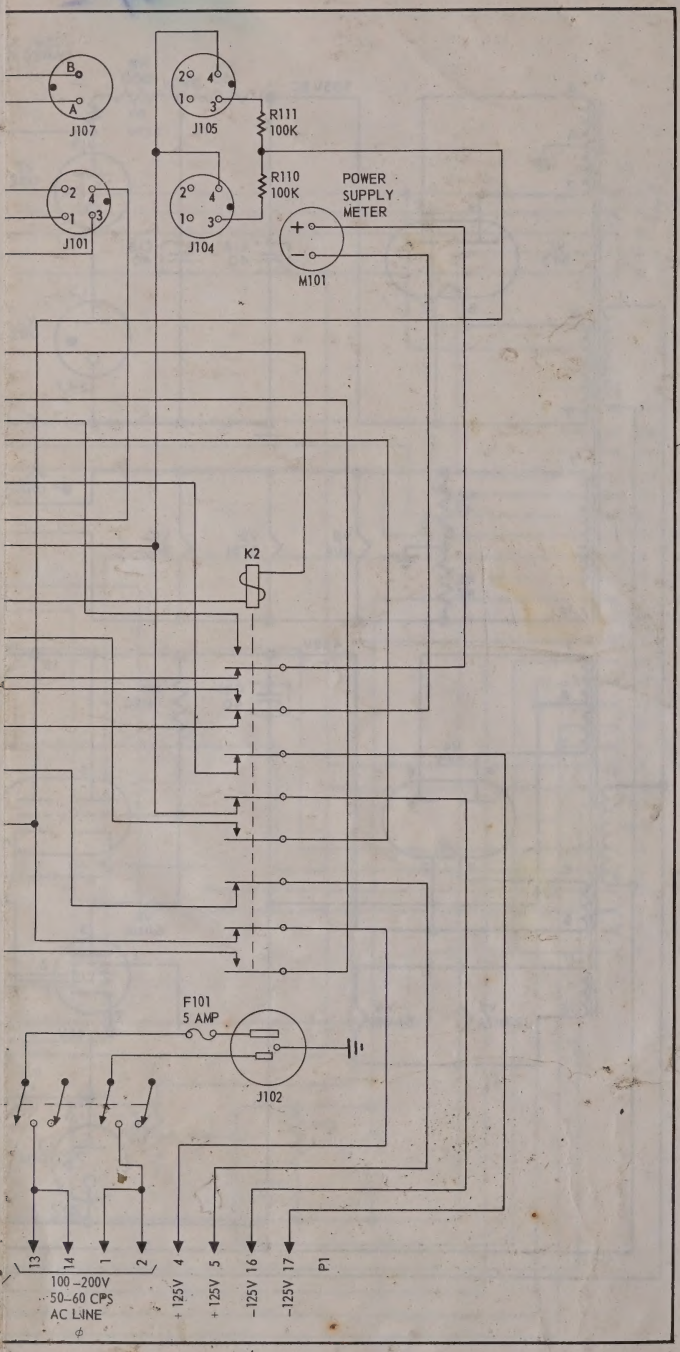


FIGURE 3. TRANSCEIVER TEST SET PANEL, SCHEMATIC DIAGRAM



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